

REMARKS

Claims 1, 7, 14, 18 and 21 have been amended to improve form. Claims 1-9, 14 and 17-22 remain pending in this application.

Claims 1-9, 14 and 17-22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Acovic et al. (U.S. Patent No. 5,411,905; hereinafter Acovic) in view of Fried et al. (U.S. Patent Publication No. 2003/0178670; hereinafter Fried). The rejection is respectfully traversed.

Claim 1 recites a memory device that includes a substrate; an insulating layer formed on the substrate; a fin structure formed on the insulating layer, the fin structure having a first and second side surface and a top surface; a first spacer formed adjacent the first side surface, the first spacer acting as a first floating gate for the memory device; and a second spacer formed adjacent the second side surface, the second spacer acting as a second floating gate for the memory device.

Claim 1 as amended also recites a dielectric cap formed over the top surface of the fin structure. Claim 1, as amended, further recites a gate dielectric layer formed on the first and second spacers and over the dielectric cap, the gate dielectric layer contacting the insulating layer and acting as an inter-gate dielectric for the memory device. The Office Action admits that the ONO layer 24 of Acovic, alleged to be equivalent to the claimed gate dielectric layer, does not contact insulating layer 10 (Office Action – page 3). The Office Action, however, states that Fried discloses a FinFET that includes an insulating layer 99, a fin 100, first and second floating gates 115 and a gate dielectric layer 116 (Office Action – page 3). The Office Action further states that gate dielectric layer 116 contacts the insulating layer 99. Fried may disclose that floating gate isolation layer 116 contacts

insulator 99 and that an oxide shape 102 is formed over fin 100 (Fried – Fig. 7). Fried, however, does not disclose that gate isolation layer 116 is formed over the top surface of a dielectric cap formed over fin 100, as required by amended claim 1. In contrast, Fried discloses that gate insulation layer 116 abuts oxide shape 102. Fried does not disclose that gate isolation layer 116 is formed over oxide shape 102.

The applicants note that ONO layer 24 in Acovic may be formed over nitride 16 and oxide 14. However, ONO layer 24 does not contact insulating layer 10. Therefore, the applicants do not believe that portions of Acovic and Fried can be fairly combined to disclose a gate dielectric layer that is both formed over a dielectric cap (formed over the top surface of a fin structure) and contacts an insulating layer, as required by amended claim 1. In other words, the applicants believe that combining portions of ONO layer 24 of Acovic and gate isolation layer 116 of Fried to somehow arrive at the claimed gate dielectric layer would not be possible absent impermissible hindsight based on the applicants' disclosure.

Claim 1 also recites a first gate contacting the insulating layer and disposed on a first side of the fin and a second gate contacting the insulating layer and disposed on a second side of the fin opposite the first side. The Office Action admits that Acovic does not disclose the claimed first and second gates that contact an insulating layer (Office Action – page 3). The Office Action, however, states that it would have been obvious to modify the device of Acovic by having the control gate contact the insulating layer for electrical isolation from other surrounding structures as taught by Fried (Office Action – page 3). Initially, the applicants note that Fried does not disclose or suggest first and second gates that are electrically isolated from each other, as required by claim 1. Fried, in contrast, discloses a single control gate 120 (Fried – Fig. 8). Therefore, the applicants do not believe

that Fried can be fairly construed as providing motivation for modifying Acovic to include first and second gates that contact an insulating layer, as required by claim 1.

For at least the reasons discussed above, the combination of Acovic and Fried does not disclose or suggest each of the features of amended claim 1. Accordingly, withdrawal of the rejection and allowance of claim 1 are respectfully requested.

Claims 2-8 are dependent on claim 1 and are believed to be allowable for at least the reasons claim 1 is allowable. In addition, these claims recite additional features not disclosed or suggested by the combination of Acovic and Fried.

For example, claim 6 recites that each of the first and second spacers comprises polysilicon and has a width ranging from about 100 Å to about 500 Å. The Office Action admits that neither Acovic nor Fried discloses this feature, but states that the claimed range with respect to the first and second spacers would be obvious and relies on In re Aller for support (Office Action – pages 3-4). The applicants respectfully disagree.

Acovic discloses forming a floating gate structure 22 that extends from the right side of one silicon structure 12 to the left side of an adjacent silicon structure 12 (Acovic – Fig. 2). Acovic is totally silent with respect to the width of floating gate 22. Fried is also totally silent with respect to the width of floating gates 115. The applicants assert that absent some disclosure in Acovic or Fried with respect to the width of floating gate 22 or floating gate 115, the combination of Acovic and Fried cannot be fairly construed to suggest a floating gate that has a particular width ranging from about 100 Å to about 500 Å, as required by claim 6. In addition, the mere allegation that the claimed feature involves only routine skill in the art, without some supporting disclosure with respect to the width of floating gate 22 in Acovic or floating gate 115 in Fried, does not satisfy the requirements of 35 U.S.C. § 103.

For at least these additional reasons, withdrawal of the rejection and allowance of claim 6 are respectfully requested.

Claim 9 recites that the fin structure has a width ranging from about 100 Å to about 1000 Å. The Final Office Action admits that neither Acovic nor Fried discloses this feature, but states that such a feature would be obvious and relies on In re Aller for support (Final Office Action – pages 3-4). The applicants respectfully disagree.

Acovic is totally silent with respect to the width of structure 12. Fried is also totally silent with respect to fin 100. Once again, the applicants assert that absent some disclosure in Acovic or Fried with respect to the width of structure 12 or 100, the combination of Acovic and Fried cannot be fairly construed to suggest that structure 12 or 100 has a width ranging from about 100 Å to about 1000 Å, as required by claim 9. In addition, the mere allegation that the claimed feature involves only routine skill in the art, without some supporting disclosure with respect to the width of structure 12 in Acovic or fin 100 in Fried does not satisfy the requirements of 35 U.S.C. § 103.

For at least these additional reasons, withdrawal of the rejection and allowance of claim 9 are respectfully requested.

Claim 14, as amended, recites features similar to, but not identical to, claim 1. For reasons similar to those discussed above with respect to claim 1, the combination of Acovic and Fried does not disclose or suggest each of the features of amended claim 14. For at least these reasons, withdrawal of the rejection and allowance of claim 14 are respectfully requested.

Claims 17-20 are dependent on claim 14 and are believed to be allowable for at least the reasons claim 14 is allowable. In addition, these claims recite additional features not disclosed or suggested by the combination of Acovic and Fried.

For example, claim 17 recites features similar to claim 6. For reasons similar to those discussed above with respect to claim 6, withdrawal of the rejection and allowance of claim 17 are respectfully requested.

Claim 21, as amended, also recites features similar to, but not identical to, claim 1. For example, claim 21 as amended, recites that the gate dielectric layer is formed on the first and second spacers and over the top surface of the fin structure. For reasons similar to those discussed above with respect to claim 1, the combination of Acovic and Fried does not disclose or suggest this feature.

Claim 21 also recites a first gate contacting the insulating layer and a second gate contacting the insulating layer. As discussed above with respect to claim 1, the combination of Acovic and Fried does not disclose or suggest these features.

Claim 21 also recites features similar to, but not identical to, claim 6. For reasons similar to those discussed above with respect to claim 6, the combination of Acovic and Fried does not disclose or suggest the claimed width of the first and second spacers.

For at least these reasons, the combination of Acovic and Fried does not disclose or suggest each of the features of claim 21. Accordingly, withdrawal of the rejection and allowance of claim 21 are respectfully requested.

Claim 22 is dependent on claim 21 and is believed to be allowable for at least the reasons claim 21 is allowable. Accordingly, withdrawal of the rejection and allowance of claim 22 are respectfully requested.

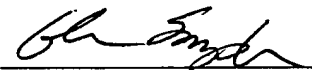
CONCLUSION

In view of the foregoing amendments and remarks above, the applicants respectfully request withdrawal of the outstanding rejection and timely allowance of this application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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Date: December 6, 2005

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